

Association between *Streptococcus infantarius* (Formerly *S. bovis* II/1) Bacteremia and Noncolonic Cancer[∇]

The association of *Streptococcus bovis* bacteremia with colon tumors has been known since the late 1970s (3). Later, it was established that this association corresponded to biotype I (6). The association of *S. bovis* biotype II is less known. A few studies have related biliary tract infections and cirrhotic bacteremia (1, 5, 6, 8).

Extensive taxonomic changes have occurred in this group, and strains formerly known as human *S. bovis* isolates are now designated different species (2, 7). Thus, in human pathology today, there are two species of principal interest: *Streptococcus gallolyticus*, with the subspecies *gallolyticus* (formerly *S. bovis* I) and *pasteurianus* (formerly *S. bovis* II/2), and *Streptococcus infantarius* (formerly *S. bovis* II/1), with the subspecies *coli* and *infantarius*.

We have studied all the *S. bovis* bacteremias prospectively over 20 years (1988 to 2007). The identification was determined by the API 20 strep method (bioMérieux, Marcy-l'Etoile, France), and since 2005, we have used, in addition, the GP card of the VITEK 2 system (bioMérieux, Marcy-l'Etoile, France). Over this period, we have found 133 bacteremias, 90 caused by *S. gallolyticus* subsp. *gallolyticus*, 15 by *S. gallolyticus* subsp. *pasteurianus*, and 28 by *S. infantarius*.

The association of colon tumors with *S. gallolyticus* was 48.5% (51 of 105) versus 11% (3 of 28) for *S. infantarius* ($P < 0.0003$). Nevertheless, for noncolonic cancer the association was 6% (6 of 105) for *S. gallolyticus* versus 57% (16 of 28) for *S. infantarius* ($P < 0.0001$). Of these 16 noncolonic cancers associated with *S. infantarius*, 12 (75%) were of the digestive tract (fundamentally pancreas and biliary tract), 9 of them appearing as cholangitis.

In an extensive review of the literature carried out by Klein et al. (4), no association between *S. bovis* and noncolonic digestive cancers was found, although at that time, the biotypes of the strains were not considered. New studies are needed to confirm our findings, in which we observe a strong association of *S. infantarius* with noncolonic digestive cancers.

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